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Handling Eggs Safely at Home

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Raw eggs contaminated with *Salmonella* bacteria have caused recent outbreaks of foodborne illness. Scientists strongly suspect that *Salmonella* bacteria can be transmitted from infected laying hens directly into the interior of the eggs before the shells are formed. The full extent of the problem is not yet known, but scientists are working to find solutions. Until more research is conducted, we need to understand the nature of *Salmonella* and how to properly handle eggs to reduce contamination.

Salmonella is a foodborne microorganism associated with dirt and foreign matter including manure. Salmonellosis is the foodborne illness that may result from eating food contaminated with *Salmonella* bacteria.

Symptoms of salmonellosis include stomach pains within 6 to 48 hours after the contaminated food is eaten. Most people get diarrhea, and many people have upset stomachs, chills, fever, or headache. Most people feel better within 3 to 5 days. Many persons with salmonellosis may believe they have the flu and may never see a doctor.

While the risk of contracting salmonellosis from raw or undercooked eggs is extremely small, eggs are a perishable product and should be handled properly during storage and cooking. *Salmonella* infections can be life-threatening for certain groups of people who are especially vulnerable: the very young, the elderly, pregnant women (because of risk to the unborn child), and people already weakened by serious illness. While these groups are at the greatest risk, anyone can be infected.

There is no precise infective dose. Healthy adult volunteers have consumed millions of *Salmonella* bacteria without getting sick. Others have become ill from consuming a few bacteria.

To protect yourself and others from salmonellosis, the U.S. Department of Agriculture recommends:

1. **Avoid eating raw eggs and foods containing raw eggs.**

   Home-made Caesar salad and Hollandaise sauce are examples of foods containing raw eggs. Products made with raw eggs such as homemade ice cream, homemade eggnog, and homemade

mayonnaise should also be avoided; commercial forms of these products are safe to serve since they are made with pasteurized eggs. Commercial pasteurization destroys *Salmonella* bacteria.

Eggs in cookie dough and cake batter are raw and dough and batter should not be eaten. Lightly cooked egg products, such as soft-cooked, soft-poached, soft-scrambled and sunny-side up eggs could present a problem. Eggs sunny-side up may receive adequate heat treatment if basted with fat or cooked with a lid (the yolk and white should be firm, not runny). French toast is also lightly cooked.

2. **Cook eggs thoroughly.**

   Both the yolk and white should be firm, not runny. Cooking eggs and egg-rich foods to an internal temperature of 160° F will destroy any *Salmonella* bacteria that may be present. A thermometer should be used to be sure this temperature is reached.

   Stirred soft custards reach serving consistency between 175 and 185° F. Homemade ice cream and eggnog can be made with recipes using a cooked custard-type basis. Use a thermometer to be sure you have cooked these products sufficiently.

3. **Use grade AA or A eggs with clean, uncracked shells.**

   Purchase eggs stored under refrigeration. Check eggs before purchase for cracks and cleanliness.

4. **Refrigerate eggs at home in their original carton.**

   Store at a temperature no higher than 40° F. Moving eggs from their carton to a refrigerator storage compartment increases the chances of accidently cracking the shells. You may also transfer bacteria between your hands and the shells.

5. **Do not wash eggs before storing or using them.**

   Most eggs sold commercially have been washed, sanitized, and sprayed with a protective oil coating to preserve quality and wholesomeness. Washing eggs at home will remove the coating. If washed improperly, any bacteria present could be drawn into the eggs through pores in the shells. The extra handling increases the chance of accidentally cracking the shells.

6. **Use eggs within a reasonable amount of time.**

   Raw eggs in the shell will keep in the refrigerator without significant quality loss for up to 3 weeks after they are purchased.

   Separated egg whites and yolks should be refrigerated in tightly covered containers and used within four days. Cover the yolks with cold water before storing and pour the water off before use.

   Hard-cooked eggs, in the shell or peeled, should be eaten within five days after cooking.

7. **When preparing and serving eggs and egg-rich foods, keep eggs out of the refrigerator no more than two hours total (not including cooking time).**

   If serving time is more than two hours, as for a buffet, serve these foods from small dishes that are

frequently replenished directly from the range or refrigerator. If you hide hard-cooked eggs for an egg hunt, either follow the two-hour rule or do not eat the eggs.

To serve eggs and egg-rich foods hot, serve immediately after cooking, or hold for serving at 140° F or higher for no longer than one hour. To serve eggs cold, put them into shallow containers and refrigerate them immediately after cooking to cool quickly.

8. **Refrigerate leftovers in covered containers immediately after serving.**

   Do not mix leftovers from the serving table with other food that is still on the range or in the refrigerator.Use leftovers within four days.

   Most harmful bacteria survive and grow rapidly between 40 and 140° F. Bacterial growth is very slow at 40° F or below.

   If food has been held at unsafe temperatures for more than two hours, it may become contaminated with harmful bacteria that are not destroyed by ordinary cooking.

   Heating this food to 165° F will not make it safe to eat after exposure for more than two hours at an unsafe temperature. Discard this food.

9. **When refrigerating a large amount of a hot egg-rich dish or leftover, divide it into several shallow containers to cool quickly.**

   Refrigerate leftovers in small, SHALLOW containers within two hours after cooking. Leave airspace around containers to help ensure rapid, even cooling. USDA suggests using containers no more than three inches deep — the depth of a cake pan or pie dish.

   Large quantities of semi-fluid food, can be quickly cooled by placing the kettle containing the product in a sink filled with ice water. Stir the food frequently until it cools to 50 to 70° F. Then transfer it to suitable containers and refrigerate.

10. **Follow good hygienic practices when preparing eggs and egg-rich foods.**

    Wash hands, utensils, equipment, and work surfaces with hot, soapy water before and after they come in contact with eggs and egg-rich foods.

    Protect food utensils, equipment, and the work area from people with infections and respiratory illnesses, pets, and household pests. Avoid "cross-contamination" — harmful bacteria may be transferred from one food to another, usually from a raw food to the same food after it is cooked, or to another raw food or cooked food. Avoid using wooden utensils (spoons, salad bowls, and wooden cutting boards) with items that contain eggs.

11. **Consider pasteurized egg products when preparing eggs to serve a large group or to take on a trip.**

    When preparing and serving eggs for a large group, use pasteurized egg products, if possible. They eliminate the risk posed by bacteria and are convenient to use. Pasteurized egg products are available from food brokers or wholesalers, usually in large-size containers, and are not generally sold in regular food stores. Egg substitutes may be used if pasteurized eggs are unavailable.

Commercial pasteurization destroys pathogenic bacteria that might be present, but does not cook the eggs or affect their color, flavor, nutritional value, or most functional properties. When pasteurized eggs are used to replace raw eggs in baked goods, the product may not rise as high.

Take dried egg products on trips (such as camping or boating) when no refrigeration is available. They are light weight, easy to pack, and can be reconstituted with clean water for use in most of the ways you would use shell eggs. Small packages are often available from sporting goods stores.

12. **For more information on handling eggs safely, call USDA'S toll free "Meat and Poultry Hotline: 1-800-535-4555.**

    Hotline hours are 9 a.m. to 3 p.m. CST, Monday through Friday.

Reference:

- Facts about Eggs. 1989. U.S.D.A. Agricultural Marketing Service Poultry Division.

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